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EXAMINER	
CHANG, EDITH M	

ART UNIT	PAPER NUMBER
2634	8

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/595,561	DABAK ET AL.	
	Examiner	Art Unit	
	Edith M Chang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed April 12 2004, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejections iare made as the following:

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 8, 11-14, 16-17, 20-21, 24-29, 36-39, 41-42, 45-46, 49-50, 52, 54-55, 58, 61, 64-65, 68-69, & 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jamal et al. (US 5930366) in view of Popovie' (US 6567482 B1).

Regarding **claims 1, 27 & 50**, except explicitly specify the third sequence comprising a subset of bits from the first sequence, Jamal et al. discloses all subject matter claimed: a wireless communication system and its forming/encoding methods (Abstract), it comprises: transmitter circuitry (FIG.7) comprising encoder circuitry for transmitting a plurality of frames (FIG.6); wherein each of the plurality of frames comprises a primary synchronization code (PSC) and a secondary synchronization code (SSC) (FIG.6, C_p is the primary synchronization code, C_s is the secondary synchronization code); and wherein the encoder circuitry comprises: circuitry for

providing the primary synchronization code in response to a first sequence (102 FIG.7 is the circuitry for providing the PSC); and circuitry for providing the secondary synchronization code (100 FIG.7 is the circuitry for the SSC) in response to a second sequence (128 FIG.2 Cw,c is a second sequence) and a third sequence (122 FIG.2 Cw,d is the third sequence); wherein the second sequence is selected from a plurality of sequences (column 6 lines 5-25, wherein the second sequence Cw,c is selected to provide an common channel spreading code), wherein each of the plurality of sequences is orthogonal with respect to all other sequences in the plurality of sequences (column 6 lines 5-25, wherein the sequence is selected from Walsh type codes that orthogonal with each other);

However Popovic' teaches the PSC is a Golay complementary sequence (column 7 lines 9-15, column 19 line 67-column 20 line 3) and a third sequence (signature sequence) comprising a subset of bits from the first sequence (column 7 lines 14, wherein the first sequence/PSC is a Golay sequence generated by signature sequences). As Jamal et al. teaches the frame timing information of the SSC is derived from the associated pilot code (column 7 line 59-column 8 line 1), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the method and apparatus (Fig.5 '482) that PSC comprising a Gloay sequence implemented in the Jamal et al.'s circuitry 102 of FIG.7 ('366) as Cp code generators that the third sequence/signature sequence generating the Golay sequence taught by Popovic' to optimize the cell search codes with a better MAS value (column 19 lines 5-10). The combined/modified method/apparatus provides accurate and efficient synchronization between radio transceivers (Abstract).

Regarding **claims 2-3**, & **28-29**, the combined/modified method/apparatus discloses that the first sequence comprises a hierarchical Golay sequence; refer to the rejection of the above claim.

Regarding **claims 11**, **14**, **16-17**, **21**, **36**, **39**, **41-42**, **46**, **52**, **55** & **65**, Jamal et al. discloses circuitry and its methods for providing the secondary synchronization code comprises: circuitry for performing an exclusive OR operation between the second sequence and the third sequence (156 FIG.7 is the excusive OR, column 12 lines 40-43); and circuitry for providing the secondary synchronization code in response to the exclusive OR operation (154 FIG.7 is the SSC in response to the exclusive OR).

Regarding **claims 12-13**, **20**, **37-38**, & **45**, **68** & **72**, in the combined/modified system/method of Jamal et al. with Popovic's teaching, Popovic' teaches the composing the PSC/Golay complementary sequences with an arbitrary number of +1 and –1 Wn (column 10 lines 10-60) to provide a complete Golay sequences of length 256 chips (column 20 lines 30-40) that cover the invention specified in the claims (different permutations/combinations).

Regarding **claim 24**, Jamal et al. discloses the transmitter comprising a CDMA Transmitter (FIG.7 112 the base stations).

Regarding **claims 25-26** & **49**, in the combined/modified system/method of Jamal et al. with Popovic's teaching, the SSC generator comprising the circuitry for storing the code derived from an exclusive OR operation (156 FIG.7 '366) between the second and third sequences (158 FIG.7 wherein the adder stores the code in the register for adding '366).

Regarding **claims 54 & 61**, the combined/modified system/method of Jamal et al. with Popovic's teaching discloses wherein each of the second and third code sequences comprise 256 bits (410 Fig.12, column 4 lines 40-50 '482), and wherein the subset of bits from the first code sequence comprises a fourth code sequence of bits and a complement of the fourth code sequence of bits (a(k) & b(k) Fig.5 are the fourth code sequence of bits, column 10 lines 10-50, wherein the $a_n(k)$ and $b_n(k)$ are two complementary sequence of the first sequence '482).

Regarding **claim 58**, except explicitly specify the third sequence comprising a subset of bits from the first sequence, Jamal et al. discloses: a decoding methods (Abstract, column 13 line 55-column 14 line 5) comprising: receiving a plurality of frames (FIG.6); wherein each of the plurality of frames comprises a primary synchronization code (PSC) and a secondary synchronization code (SSC) (FIG.6, C_p is the primary synchronization code, C_s is the secondary synchronization code); identifying the primary synchronization code in response to a first sequence (102 FIG. PSC is the first sequence); identifying the secondary synchronization code (100 FIG.7 the SSC) in response to a second sequence (128 FIG.2 Cw,c is a second sequence) and a third sequence (122 FIG.2 Cw,d is the third sequence); wherein the second sequence is selected from a plurality of sequences (column 6 lines 5-25, wherein the second sequence Cw,c is selected to provide an common channel spreading code), wherein each of the plurality of sequences is orthogonal with respect to all other sequences in the plurality of sequences (column 6 lines 5-25, wherein the sequence is selected from Walsh type codes that orthogonal with each other);

However Popovic' teaches the PSC is a Golay complementary sequence (column 7 lines 9-15, column 19 line 67-column 20 line 3) and a third sequence (signature sequence) comprising a subset of bits from the first sequence (column 7 lines 14, wherein the first sequence/PSC is a Golay sequence generated by signature sequences). As Jamal et al. teaches the frame timing information of the SSC is derived from the associated pilot code (column 7 line 59-column 8 line 1), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the method and apparatus (Fig.5 '482) that PSC comprising a Gloay sequence implemented in the Jamal et al.'s method as Cp code generators that the third sequence/signature sequence generating the Golay sequence taught by Popovic' to optimize the cell search codes with a better MAS value (column 19 lines 5-10). The combined/modified method/apparatus provides accurate and efficient synchronization between radio transceivers (Abstract).

Regarding **claim 64**, except explicitly specify I) the third sequence comprising a subset of bits from the first sequence and II) a fifth sequence, Jamal et al. discloses: a encoding methods (Abstract) comprising: providing a plurality of frames (FIG.6); wherein each of the plurality of frames comprises a primary synchronization code (PSC) and a secondary synchronization code (SSC) (FIG.6, C_p is the primary synchronization code, C_s is the secondary synchronization code); producing the primary synchronization code in response to a first sequence (102 FIG. PSC is the first sequence); producing the secondary synchronization code (100 FIG.7 the SSC) in response to a second sequence (128 FIG.2 Cw,c is a second sequence) and a third sequence (122 FIG.2 Cw,d is the third sequence); wherein the second sequence is selected from a plurality of sequences (column 6 lines 5-25, wherein the second sequence Cw,c is selected to provide an

common channel spreading code), wherein each of the plurality of sequences is orthogonal with respect to all other sequences in the plurality of sequences (column 6 lines 5-25, wherein the sequence is selected from Walsh type codes that orthogonal with each other), but does not explicitly specify the third sequence comprising a subset of bits from the first sequence ;

With respect to item I), Popovic' teaches the PSC is a Golay complementary sequence (column 7 lines 9-15, column 19 line 67-column 20 line 3) and a third sequence (signature sequence) comprising a subset of bits from the first sequence (column 7 lines 14, wherein the first sequence/PSC is a Golay sequence generated by signature sequences).

With respect to item II), Popovic' teaches the subset of bits from the first code sequence comprises a fourth code sequence of bits and a fifth sequence wherein the complement of the fourth code sequence of bits is the fifth sequence (a(k) Fig.5 is the fourth code sequence of bits, b(k) is the fifth code sequence; column 10 lines 10-50, wherein the $a_n(k)$ and $b_n(k)$ are two complementary sequence of the first sequence '482)

As Jamal et al. teaches the frame timing information of the SSC is derived from the associated pilot code (column 7 line 59-column 8 line 1), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the method and apparatus (Fig.5 '482) that PSC comprising a Golay complementary sequence implemented in the Jamal et al.'s circuitry 102 of FIG.7 as Cp code generators that the third sequence/signature sequence generating the Golay complementary sequences taught by Popovic' to optimize the cell search codes with a better MAS value (column 19 lines

5-10). The combined/modified method/apparatus provides accurate and efficient synchronization between radio transceivers (Abstract).

Regarding **claim 69**, except explicitly specify I) the third sequence comprising a subset of bits from the first sequence and II) a fifth sequence, Jamal et al. discloses: a decoding methods (Abstract, column 13 line 55-column 14 line 5) comprising: receiving a plurality of frames (FIG.6); wherein each of the plurality of frames comprises a primary synchronization code (PSC) and a secondary synchronization code (SSC) (FIG.6, C_p is the primary synchronization code, C_s is the secondary synchronization code); identifying the primary synchronization code in response to a first sequence (102 FIG. PSC is the first sequence); identifying the secondary synchronization code (100 FIG.7 the SSC) in response to a second sequence (128 FIG.2 Cw,c is a second sequence) and a third sequence (122 FIG.2 Cw,d is the third sequence); wherein the second sequence is selected from a plurality of sequences (column 6 lines 5-25, wherein the second sequence Cw,c is selected to provide an common channel spreading code), wherein each of the plurality of sequences is orthogonal with respect to all other sequences in the plurality of sequences (column 6 lines 5-25, wherein the sequence is selected from Walsh type codes that orthogonal with each other), but does not explicitly specify the third sequence comprising a subset of bits from the first sequence ;

With respect to item I), Popovic' teaches the PSC is a Golay complementary sequence (column 7 lines 9-15, column 19 line 67-column 20 line 3) and a third sequence (signature sequence) comprising a subset of bits from the first sequence (column 7 lines 14, wherein the first sequence/PSC is a Golay sequence generated by signature sequences).

With respect to item II), Popovic' teaches the subset of bits from the first code sequence comprises a fourth code sequence of bits and a fifth sequence wherein the complement of the fourth code sequence of bits is the fifth sequence (a(k) Fig.5 is the fourth code sequence of bits, b(k) is the fifth code sequence; column 10 lines 10-50, wherein the $a_n(k)$ and $b_n(k)$ are two complementary sequence of the first sequence '482)

As Jamal et al. teaches the frame timing information of the SSC is derived from the associated pilot code (column 7 line 59-column 8 line 1), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the method and apparatus (Fig.5 '482) that PSC comprising a Golay complementary sequence implemented in the Jamal et al.' method as Cp generators that the third sequence/signature sequence generating the Golay complementary sequences taught by Popovic' to optimize the cell search codes with a better MAS value (column 19 lines 5-10). The combined/modified method/apparatus provides accurate and efficient synchronization between radio transceivers (Abstract).

4. Claims 4-10, 15, 18-19, 22-23, 30-35, 40. 43-44, 47-48, 51, 53, 56-57, 59-60, 62-63, 66-67& 70-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jamal et al. (US 5930366) in view of Popovic' (US 6567482 B1) as applied to claims 1, 27, 50, 58, 64 and 69 above, and further in view of Nystrom et al. (US 6526091 B1 referenced and included by Popovic').

Regarding **claims 4, 15, 18, 22, 30, 40, 43, 47, 53, 56, 60, 62, 66 & 70**, Jamal et al. does not explicitly specify the Hadamard sequence, further Nystrom et al. teaches the second sequence comprising a plurality of code words (Abstract, column 3 line 63-

column 4 line 10, wherein a plurality of sequences of code words that are Hadamard sequences as the scrambling codes/second sequence assigned to respective scrambling code groups) and each of the plurality of code words is selected from a plurality of Hadamard sequences. As Jamal et al. using the group code Cw,c, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the second sequence (Cw,c) of Jamal et al. comprising the Hadamard sequences taught by Nystrom et al. to provide optimized correlation properties to improve the synchronization (column 1 lines 8-15).

Regarding **claims 5 & 31**, further Nystrom et al. discloses the second sequence consists of fifteen of the code words (FIG.10, column 7 lines 15-25 '091).

Regarding **claims 8 & 34**, further Nystrom et al. discloses the second sequence consists of sixteen of the code words (FIG.10 '091).

Regarding **claims 6, 9 & 32**, Popovic' teaches the plurality of Hadamard sequences are selected from a set of 256 Walsh sequences (column 19 line 65-column 20 line 15).

Regarding **claims 7, 23, 33, & 48, 67 & 71**, further Nystrom et al. teach the 256 Walsh sequences have a defined order (column 10 lines 30-35 '091); and wherein the plurality of Hadamard sequences comprise sixteen Hadamard sequences selected as every sixteenth sequence in the defined order (column 9 lines 30-40 '091 wherein the every sixteenth sequence for the sixteen time slots).

Regarding claims **10, 19, 35, 44, 57 & 63**, Popovic' teaches the 256 Walsh sequences have a defined order (column 20 lines 25-40 '482); and wherein the plurality of Hadamard sequences comprise seventeen Hadamard sequences selected as every

eighth sequence in the defined order (column 20 lines 25-40, column 21 line 20-column 22 line 5, wherein the permutation defined in equation (1) at column 10 lines 25-55 as every eighth sequence in the defined order).

Regarding **claims 51 & 59**, further Nystrom et al. teaches the SSC code sequence comprising 32 repeated instances of the a subset of bits from the first code sequence (column 8 lines 20-35, wherein the sequence containing all A alphabets listed at line 32 is the sequence comprising 32 repeated instances: the alphabet is 8 bits, the 256 length sequence containing 32 repeated alphabets).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
June 22, 2004

CHIEH M. FAN
PRIMARY EXAMINER